Enfermedades infecciosas en aviación

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Clínica Colsanitas

Keralty

World Health Organization

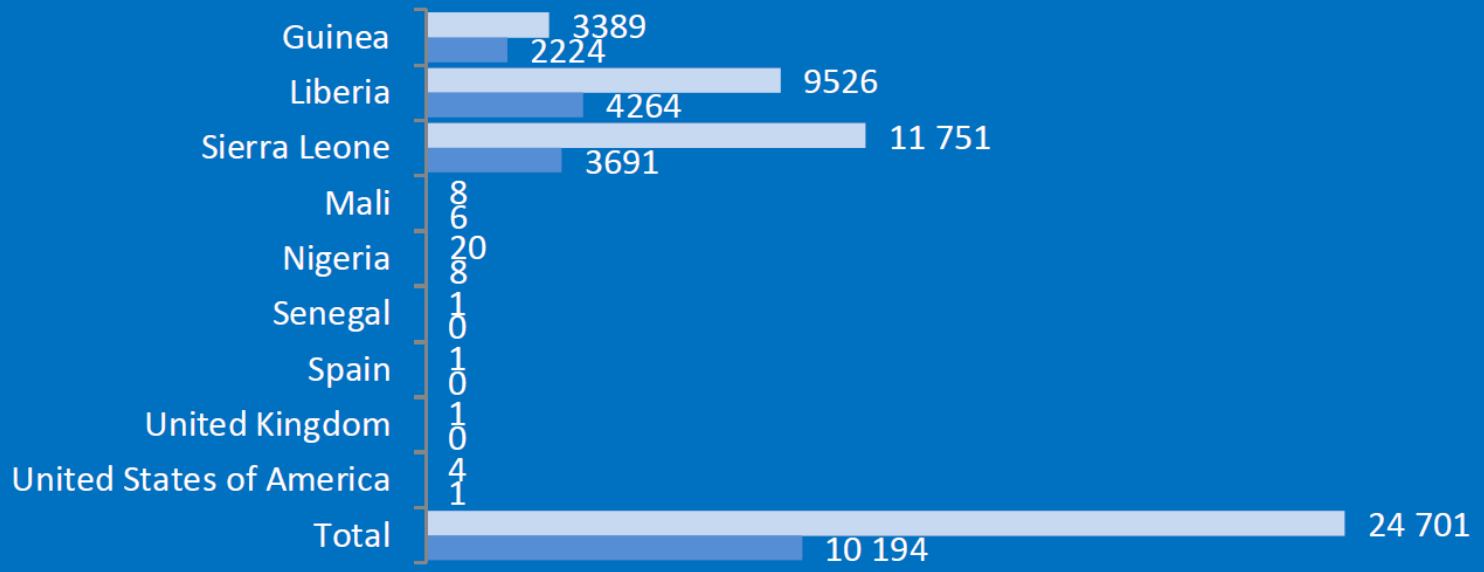
EBOLA SITUATION REPORT

18 MARCH 2015

Corrected on 19 March 2015

CASES/
DEATHS

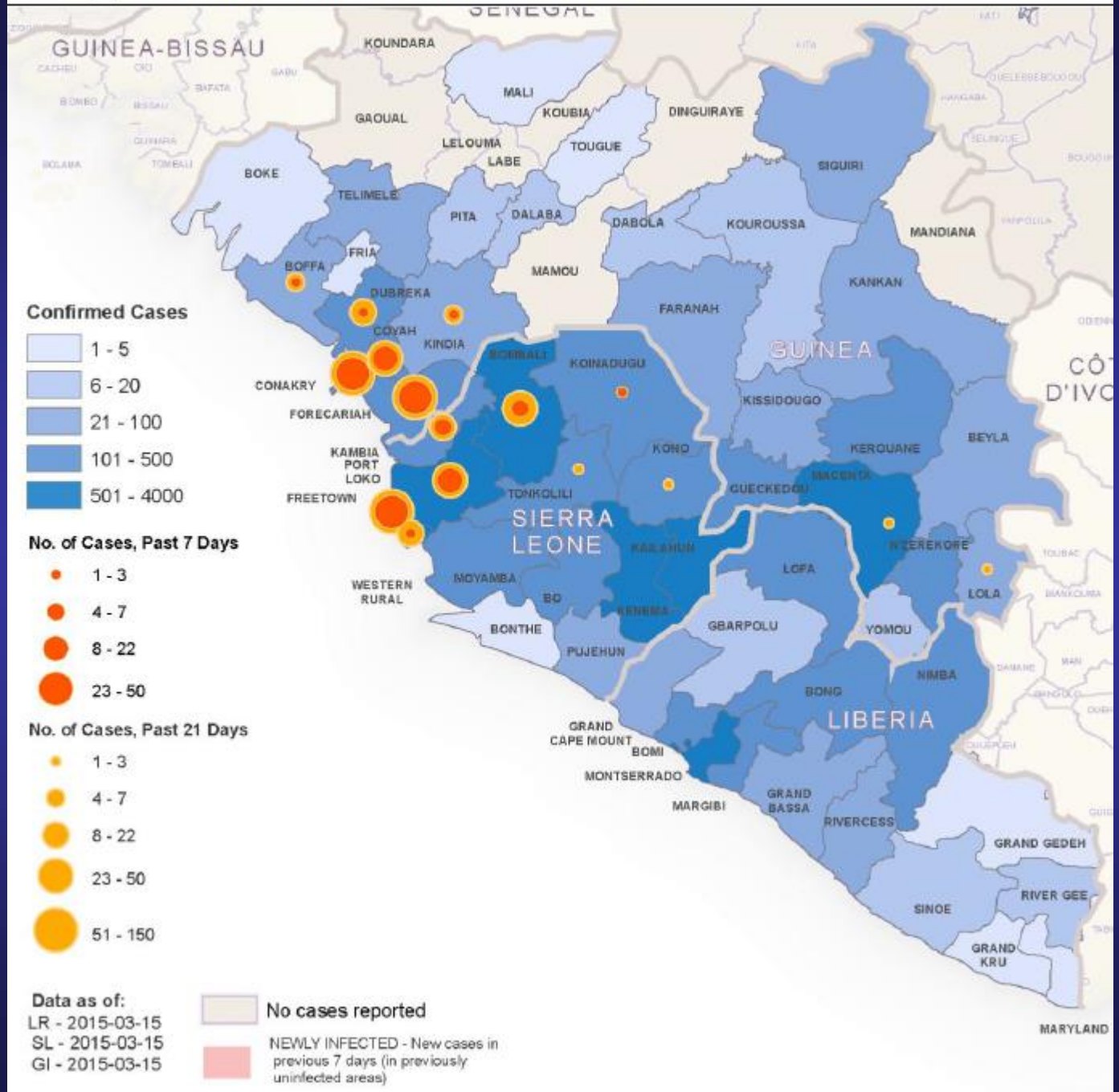
(data up to 15 March 2015)



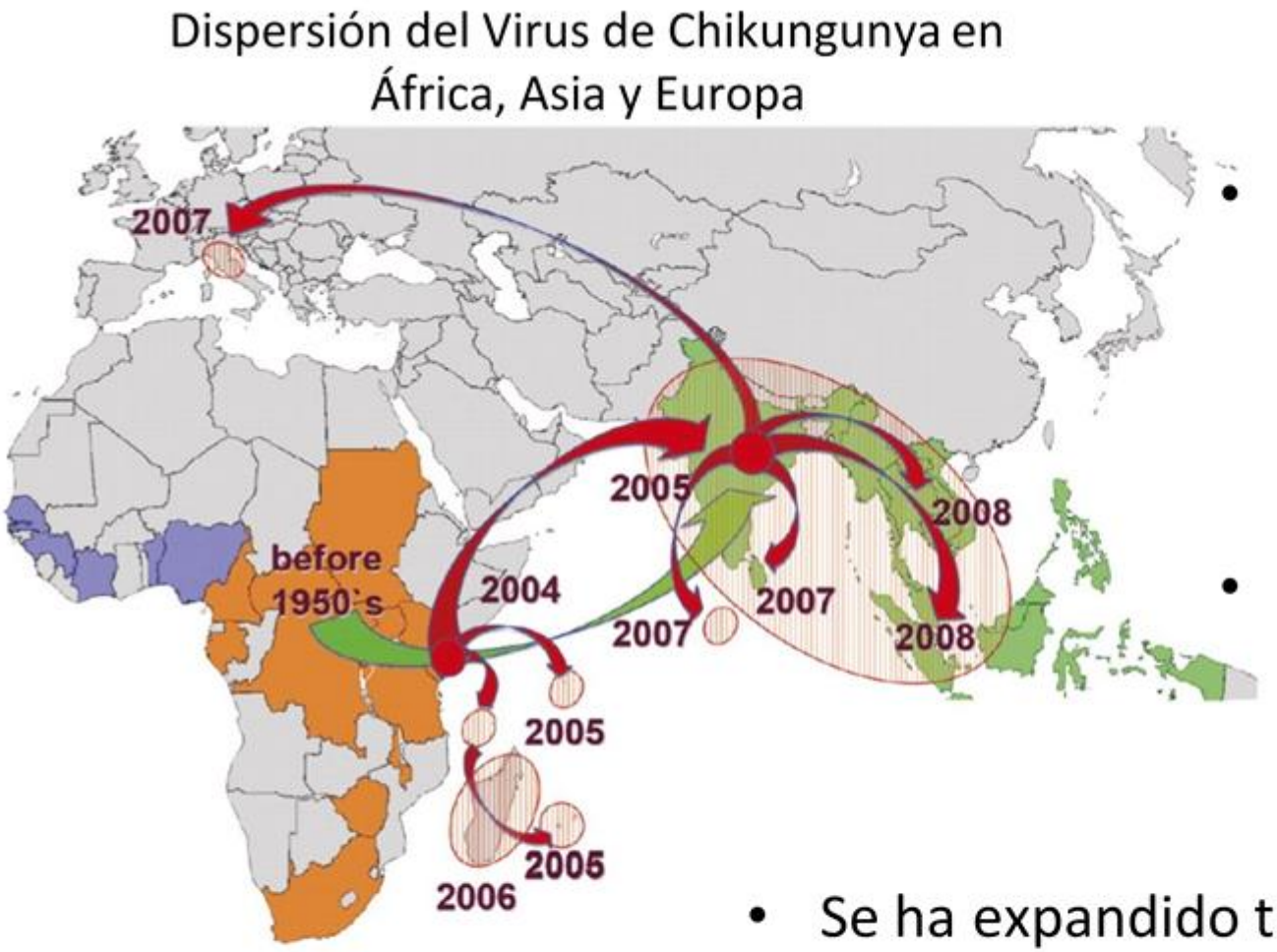
SUMMARY

- A total of 150 new confirmed cases of Ebola virus disease (EVD) were reported in the week to 15 March,

e 4: Geographical distribution of new and total confirmed cases



Chigungunya



- Enfermedad viral transmitida por *Aedes aegypti y Aedes albopictus.*
- El agente: *Alfavirus* reportado desde finales del siglo XVIII.
- Se ha expandido través de Asia, África y Europa (Italia) a partir de 2004.

Primer caso de chikungunya en Colombia llegó de República Dominicana

Instituto Nacional de Salud confirmó el caso en una mujer de 71 años que llegó a Cali desde la isla.

Por: ESTILO DE VIDA Y CALI

12:05 a.m. | 22 de julio de 2014


WHO updates

DONATE HELP STOP EBOLA

World Health Organization

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Global Alert and Response (GAR)

GAR Home
Alert & Response Operations
Diseases
Global Outbreak Alert & Response Network
Biorisk Reduction

Middle East respiratory syndrome coronavirus (MERS-CoV) – Saudi Arabia

Disease outbreak news
20 March 2015

Between 3 and 10 March 2015, the National IHR Focal Point for the Kingdom of Saudi Arabia notified WHO of 15 additional cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection, including 5 deaths. Cases are listed by date of reporting, with the most recent case listed first.

Details of the cases are as follows:

1. A 72-year-old female from Buridah city developed symptoms on 23 February and was admitted to hospital on 2 March. She history of exposure to known risk factors symptoms is ongoing. The patient passe
2. A 61-year-old male from Riyadh city dev admitted to hospital since 22 February d The patient was admitted to the same ho MERS-CoV cases; investigation of epide

centre | Publications | Countries | Programmes | Governance | Abou

Global Alert and Response (GAR)

Travax News Alert - Mar. 17, 2015

Shoreland's *Travax News Alert* Service

New Caledonia: Zika Virus

According to international health authorities, an outbreak of Zika virus infection is occurring, although it has peaked. Zika virus, transmitted by mosquitoes, is a flavivirus from the same family as dengue and West Nile viruses. Travelers are advised to practice daytime insect precautions.

Solomon Islands: Zika Virus

According to international health authorities, an outbreak of Zika virus infection is occurring and has yet to peak. Zika virus, transmitted by mosquitoes, is a flavivirus from the same family as dengue and West Nile viruses. Travelers are advised to practice daytime insect precautions

Vanuatu: Zika Virus

According to international health authorities, an outbreak of Zika virus infection is occurring, although it has peaked. Zika virus, transmitted by mosquitoes, is a flavivirus from the same family as dengue and West Nile viruses. Travelers are advised to practice daytime insect precautions.

Human infection with avian influenza A(H7N9) virus – China

Disease outbreak news
11 March 2015

On 9 March 2015, the National Health and Family Planning Commission (NHFPC) of China notified WHO of 59 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus, including 17 fatal cases. Onset dates ranged from 21 January to 25 February 2015. Below is a breakdown of the 59 cases included in this notification by epidemiological week of symptom onset:

- Week 4 (19 – 25 January) 5 cases
- Week 5 (26 January – 1 February) 13 cases
- Week 6 (2 – 8 February) 9 cases

Shoreland's *Travax News Alert* Service

Nigeria: Meningococcal Meningitis

According to WHO, Nigeria's Ministry of Health has reported 652 suspected cases of meningococcal meningitis (serogroup C) within the known meningitis belt region of northern Nigeria, primarily in Kebbi and Sokoto states, since late January 2015. The epidemic threshold has not been surpassed in either state. Shoreland continues to recommend vaccination for travelers to the affected area during the dry season (December through June) and the northern region, as well as for all children and health care workers throughout the year for the entire country. See Travax Destinations: Nigeria, then Immunizations, then the meningococcal meningitis statement.

Global Alert and Response (GAR)

Typhoid fever – Uganda

Disease outbreak news
17 March 2015

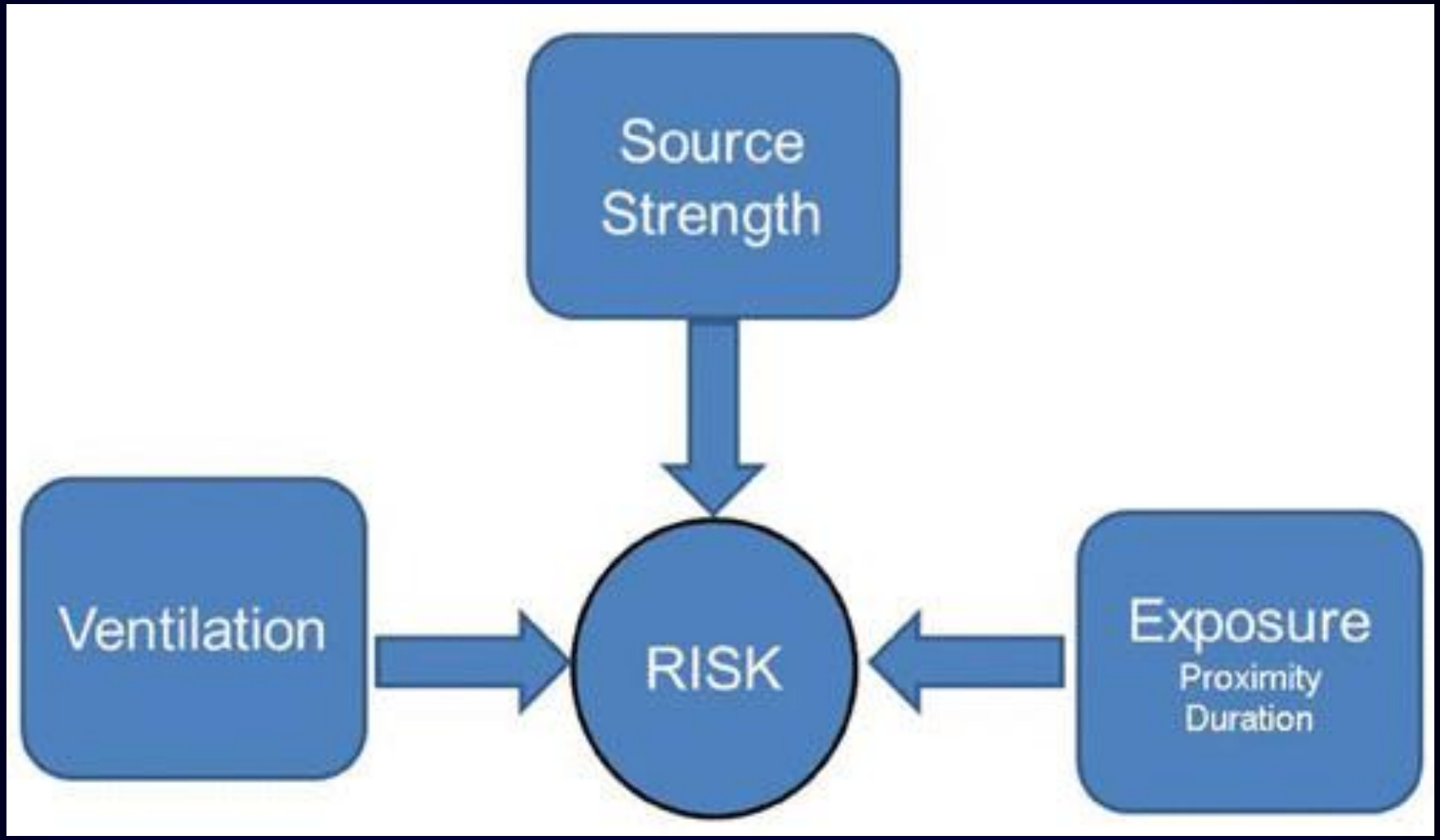
On 24 February 2015, the Ministry of Health of Uganda notified WHO of a typhoid fever outbreak.

The outbreak started in Kampala City at the beginning of 2015. As of 5 March 2015, a total of 1940 suspected cases have been reported. From the first epicentre in downtown Kampala, the outbreak has now spread to all divisions in the capital city and to neighbouring districts. The most affected groups are young males aged between 20 and 39 years. The majority of cases work in the business sector or as casual labourers. Food and juice vendors and cooks are also affected, hence the potential for wide spread of the disease. At the beginning of the outbreak Salmonella Typhi was laboratory-confirmed in 4 of 16 tested specimens. Further specimens have

Tabla 32.3. Enfermedades emergentes en las cuales los viajes aéreos de personas o de los vectores contribuyeron a su diseminación

Enfermedad	Agente infeccioso	Origen (año)	Destino
Gripa porcina	Virus de influenza AH1N1	México (2009)	Pandemia
	Vibrio cholerae	Asia (2008)	Epidemia Haití (2010)
Infecciones por gérmenes gram negativos (sepsis, infecciones urinarias, neumonía, etc.)	Enterobacterias resistentes a carbapenémicos, NDM-1 *(E.coli)*	India (2009)	Europa, Japón, Estados Unidos, Suráfrica
Dengue	Virus del Dengue	Asia (1950)	Emergencia global
MERS-CoV*	Coronavirus	Arabia Saudita (2012)	Europa, Corea del sur, Estados Unidos, Filipinas
Zika	Virus del Zika	África y Asia	Latinoamérica (2015)
Chikungunya	Virus del Chikungunya	Asia y África	Latinoamérica (2013) y Europa
SARS-CoV**		Sureste de China (2002)	Hong Kong, Norte América, Filipinas
Ébola	Virus del Ébola (familia Filovirus)	África occidental (2014)	Estados Unidos, Reino Unido, España, Italia

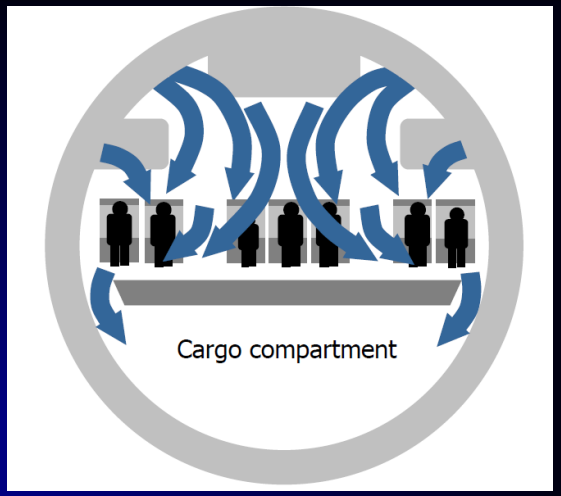
Determinantes del riesgo de infección dentro de un espacio confinado.



Source: microbiolspec October 2015 vol. 3 no. 5 doi:10.1128/microbiolspec.IOL5-0009-2015

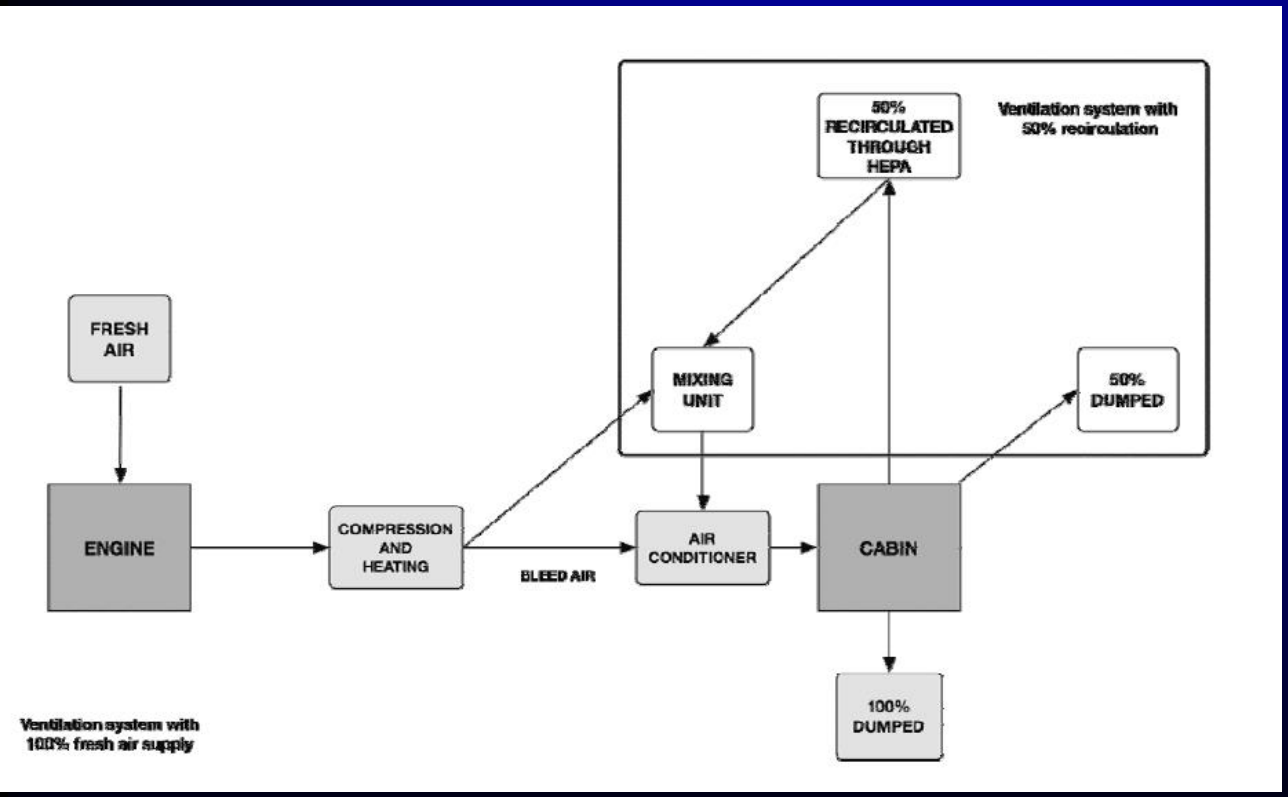
ECDC TECHNICAL REPORT

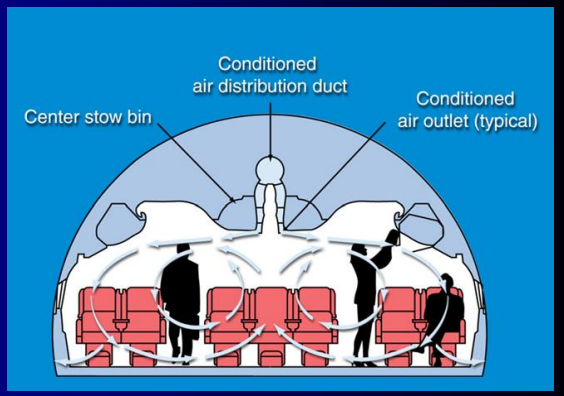
Risk assessment guidelines for infectious diseases transmitted on aircraft



Sistemas de ventilación en aviones.

Flujo de aire de cabina





Ikonen *et al. BMC Infectious Diseases* (2018) 18:437
https://doi.org/10.1186/s12879-018-3150-5

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Deposition of respiratory virus pathogens on frequently touched surfaces at airports

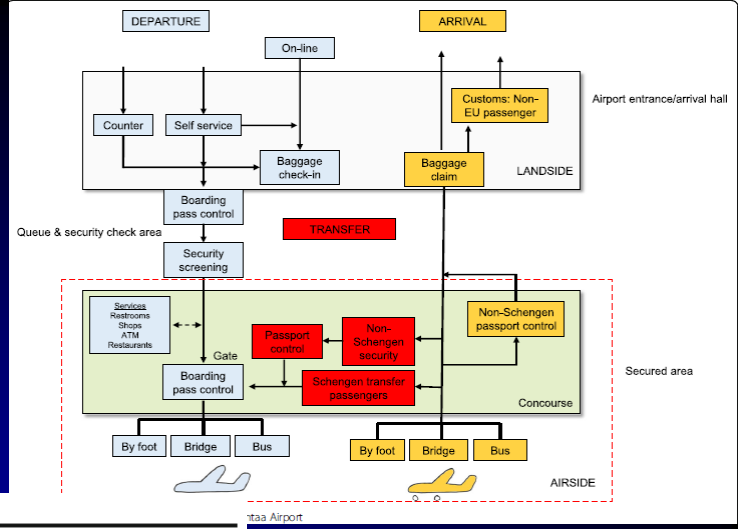


Table 1 Respiratory viruses detected from the surface and air samples

Sample type	Sampling area	Positive/number of samples	Detected respiratory virus
Surface	Toilet: upper surface the toilet bowl lid	0/14	none
Surface	Toilet: button for flushing	0/14	none
Surface	Toilet: lock at the door inside the toilet	0/14	none
Surface	Hand-carried luggage boxes at the security check area	4/8	adeno
			influenza A
			rhino
			human corona OC43
Surface	Armrest of a chair at the waiting area	0/6	none
Surface	Handrails of an escalator	0/10	none
Surface	Handrails of stairs	1/7	human corona OC43
Surface	Plastic toy dog in children's playgroung	2/3	rhino
			adeno
Surface	The trolley handles for luggage	0/3	none
Surface	The buttons of an elevator	0/3	none
Surface	The touch screen on the check-in machine	0/3	none
Surface	Desk and divider glass at the passport control point	1/3	rhino
Surface	Buttons of payment terminal at the pharmacy	1/2	rhino and human corona OC43
Air	At the security check area	1/4	adeno

Las bandejas plásticas de detección de seguridad parecían representar el mayor riesgo potencial, y su manejo es casi inevitable para todos los pasajeros que se embarcan.

Travel Medicine and Infectious Disease 28 (2019) 6–14

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Travel Medicine and Infectious Disease

journal homepage: www.elsevier.com/locate/tmaid

Microorganisms @ materials surfaces in aircraft: Potential risks for public health? – A systematic review

Bin Zhao[a], Carolin Dewald[a,d], Max Hennig[a], Jörg Bossert[a], Michael Bauer[b], Mathias W. Pletz[c,*], Klaus D. Jandt[a,d,**]

licrobiological investigations on specified/selected surfaces of aircraft interiors.

Classification	Genus/species detected or studied	Tenacity	Interior surfaces contaminated
Bacteria	*Staphylococcus aureus, Streptococcus, Corynebacterium, Propionibacterium, Kocuria,* etc. (58 genera in total) [35]	No data	Armrest, tray table, toilet seat and floor, lavatory sink and door knob/handle [35]
	Stenotrophomonas maltophilia, Pseudomonas spp., Shewanella putrefaciens, Rhodococcus spp., Flavobacterium, Micrococcus luteus, etc. [23]	No data	Tray table, armrest [23]
	Escherichia coli O157:H7 [20]	4 days (armrest), 3 days (tray table), 2 days (steel toilet handle) [20]	Tray table, armrest, toilet flush handle [20]
	Methicillin-resistant Staphylococcus aureus [20]	2–8 days varied from different media and surface type [20]	Tray table, armrest, toilet flush handle, window shade, seat cover and pocket [20]
Fungi	*Aspergillus, Alternaria tenuissima, Rhodotorula glutinis, Sporobolomyces salmonicolor, etc.* [22]	No data	Tray table, armrest [22]
	Aspergillus/Penicillium, Aspergillus versicolor, Stachybotrys chartarum, Streptomyces [40]	No data	Textile seats and leather seats [40]
Viruses	*Influenza A virus* [54]	2–3 days [71]	Close to seat pocket [54]
	Norovirus [55,56]	No data	Contaminated interior surfaces [55,56]
	Influenza A virus, Respiratory syncytial virus, and *rhinoviruses* [39] (Simulation works)	No data	Non-fabric or fabric seat surfaces [39]

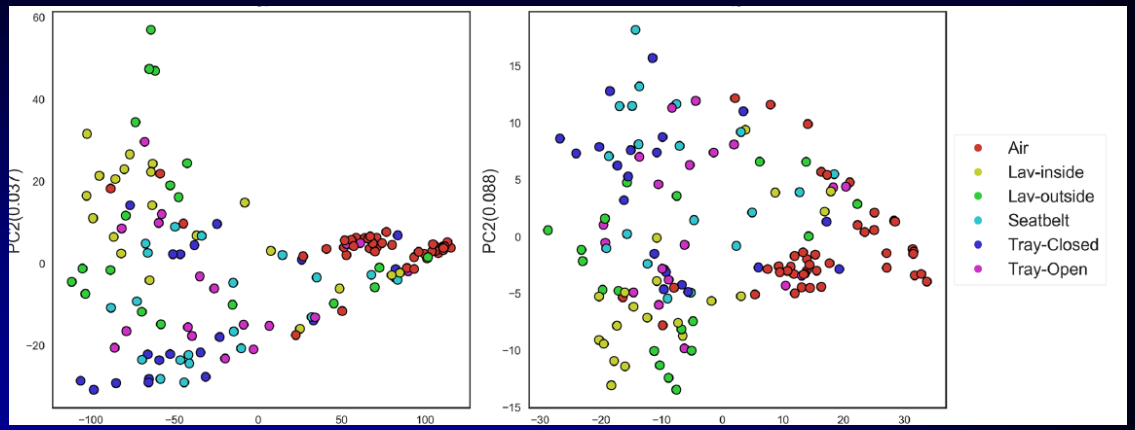
Las superficies interiores en las áreas de asientos y lavabos podrían presentar mayores riesgos para la salud al causar infecciones debido a su contaminación microbiana relativamente alta en comparación con otras superficies interiores

Microbial Ecology (2019) 77:87–95
https://doi.org/10.1007/s00248-018-1191-3

ENVIRONMENTAL MICROBIOLOGY

The Airplane Cabin Microbiome

Howard Weiss[1] · Vicki Stover Hertzberg[2] · Chris Dupont[3] · Josh L. Espinoza[3] · Shawn Levy[4] · Karen Nelson[5] · Sharon Norris[6] · The FlyHealthy Research Team



Journal of Travel Medicine
International Society of Travel Medicine
Promoting healthy travel worldwide
Established 1991

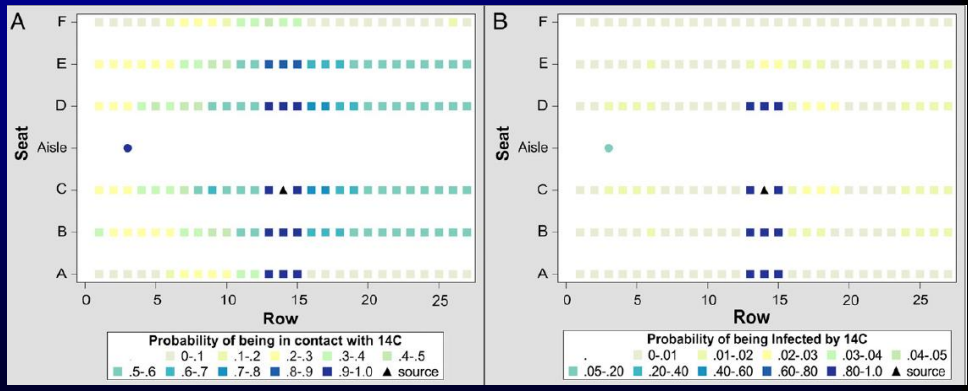
Journal of Travel Medicine, 2016, 1–7
doi: 10.1093/jtm/tav002
Review

Review

The roles of transportation and transportation hubs in the propagation of influenza and coronaviruses: a systematic review

Behaviors, movements, and transmission of droplet-mediated respiratory diseases during transcontinental airline flights

Vicki Stover Hertzberg[a,1,2], Howard Weiss[b,1], Lisa Elon[c], Wenpei Si[d], Sharon L. Norris[e], and The FlyHealthy Research Team[3]

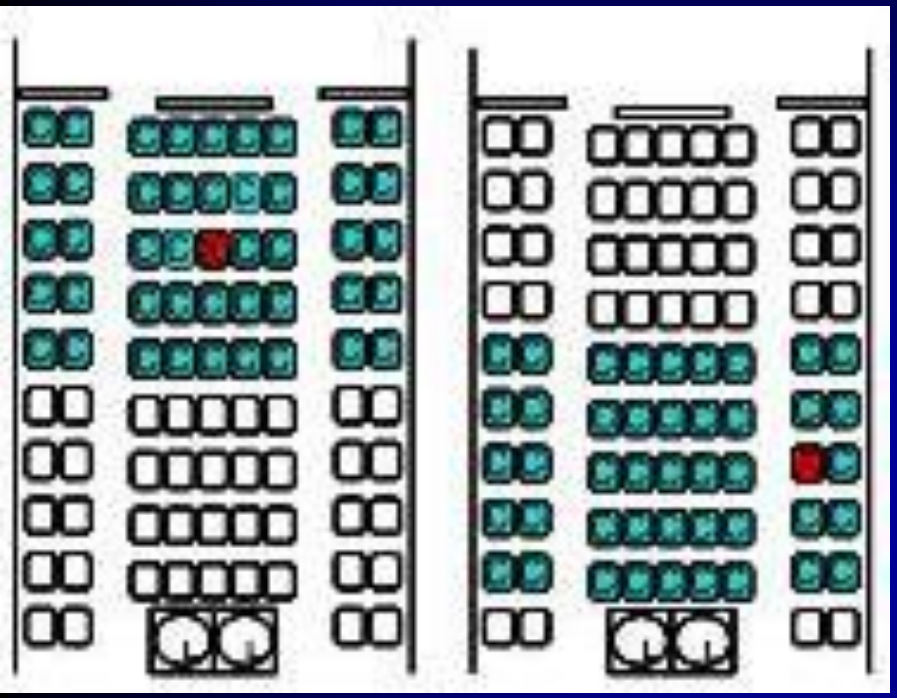


ORIGINAL RESEARCH

On the 2-Row Rule for Infectious Disease Transmission on Aircraft

Vicki Stover Hertzberg, PhD, Howard Weiss, PhD
Atlanta, Georgia

Annals of Global Health



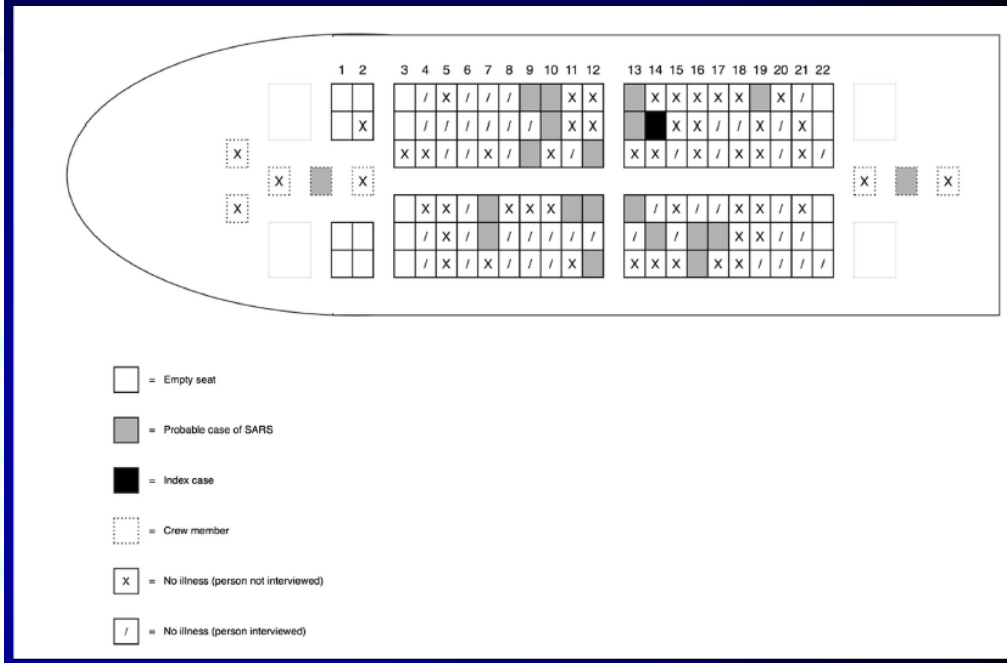


Diagrama de asientos para pasajeros expuestos al sarampión, la rubéola o la tuberculosis.
Rojo: Caso índice
Azul-verde: representa el área de contacto.

Transmisiones de SARS en un vuelo de Hong Kong a Beijing.

Existe un riesgo del 6% para los pasajeros sentados dentro de las 2 filas de personas infectadas y hay un 2% de riesgo para los pasajeros sentados más allá de las 2 filas de la persona infecciosa.

https://www.cdc.gov/quarantine/contact-investigation.html

ORIGINAL RESEARCH

On the 2-Row Rule for Infectious Disease Transmission on Aircraft

Vicki Stover Hertzberg, PhD, Howard Weiss, PhD
Atlanta, Georgia

Annals of Global Health

Table 1. Reports of in-flight transmission of infection with seat maps indicating infectious and infected passengers

Disease	Aircraft	Origin	Destination	Flight Time (Hours:Minutes)	No. of Cases Within ±2 Rows/No. at Risk	No. of Cases Beyond ±2 Rows/No. at Risk
SARS[14]	Boeing 737	Hong Kong	Beijing	3:00	9/29	9/75
SARS[13]	*	Hanoi†	Paris	14:50	1/9	1/60
Influenza A/H1N1/p09[4]	Boeing 747	Los Angeles	Auckland	12:40	4/67	0/52
Influenza A/H1N1/p09[22]	Boeing 767	‡	Birmingham, UK	9:30	2/39	4/242
Influenza A/H1N1/p09	Boeing 767	Cancun	Birmingham, UK	9:30	5/128	4/43
Influenza-like illness[23]	British Aerospace 146	§	§	3:20	9/24	8/50
Measles[9]	‖	‖	‖	‖	9/343¶	11/750¶

Existe un riesgo del 6% para los pasajeros sentados dentro de las 2 filas de personas infectadas y hay un 2% de riesgo para los pasajeros sentados más allá de las 2 filas de la persona infecciosa.

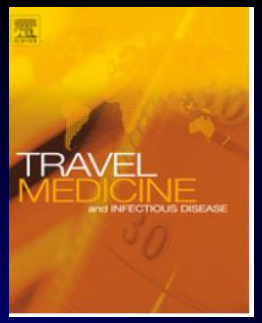
Table 3. Information relevant for contact tracing obtained from TB control guidelines.

Guideline	Contact tracing (CT) recommended if:	Mode of CT recommended	Time frame for CT recommended	Other measures recommended
WHO. Tuberculosis and air travel: Guidelines for prevention and control (3rd edition)	Index case with pulmonary or laryngeal TB either confirmed infectious (smear and culture positive) or potentially infectious (smear negative and culture positive) and risk assessment justifies CT*. * Presence of cavitations on chest x-ray or documented transmission to close contact or presence of symptoms (such as cough, haemoptysis) at the time of flight and flight time equalling at least eight hours, or result of risk assessment justifies CT.	CT for close contacts: +/- 2 seating rows around index case; crew not routinely considered as close contacts	Limited to flights that took place during the last three months before notification of the TB case to the public health authority.	Surgical facemask or paper tissues for index case during flight. Notification of public health authority of country where first diagnosis was made: information about index case.
CDC. Guidelines for the investigation of contacts of persons with infectious tuberculosis. Recommenda-tions from the National Tuberculosis Controllers Association and CDC.	Index cases of pulmonary/pleural or laryngeal TB if the sputum smear has AFB on microscopy. If AFB is not detected by microscopy in three sputum smears, an investigation is still recommended if the chest radiograph indicates the presence of cavities in the lung.	Not specified	Minimum of two face-to-face interviews no later than <=1 business day after reporting for infectious index cases, and no later than <= 3 business days for suspected cases.	Not specified
HPA: NICE. Tuberculosis: Clinical diagnosis and management of tuberculosis, and measures for its prevention and control. 2006. National Institute for Health and Clinical Excellence. Clinical Guideline 33.	Only if index case is sputum smear positive, and either is infected with MDR TB or index case coughed frequently during flight, and flight time was longer than eight hours.	Not specified	Less than three months have elapsed at point of notification since the flight.	Not specified
DZK. Empfehlungen für die Umgebungs-unter-suchungen bei Tuberkulose. 2007.	AFB from the index case's sputum or respiratory secretions have been found positive, or culture or molecular tests (molecular amplification methods) from the index case's sputum or respiratory secretions return positive results, or if chest x-ray shows cavernous lesions	Not specified	Not specified	Not specified

REVIEW

Air Travel and TB: An airline perspective

Nigel P. Dowdall [a,*,1], Anthony D. Evans [b], Claude Thibeault [c]



Un riesgo grave para la salud pública también lo plantean los pasajeros con tuberculosis respiratoria por MDR / XDR o por enfermedades infecciosas.

los pasajeros que muestran síntomas o muestran un comportamiento durante el vuelo que aumenta la transmisibilidad, por ejemplo,
Frecuente toser o estornudar, o contacto social cercano.
Seguimiento de contactos.

En consecuencia, en casos de pasajeros índice con MDR respiratoria infecciosa confirmada o TB XDR, el rastreo de contactos
Siempre se debe considerar, independientemente del tiempo de vuelo y los detalles de los asientos.

Comparison of criteria for risk assessment in European Centre for Disease Prevention and Control, World Health Organization, and Centers for Disease Control and Prevention guidelines on tuberculosis transmission on aircraft

	ECDC/RAGIDA 2014 [35]	ECDC/RAGIDA 2009 [8]	WHO 2008 [2]	CDC 2012 [17]
Infectiousness	Same as in 2009	Infectious pulmonary TB (smear-positive in spontaneous or induced sputum or bronchoalveolar lavage).	**Infectious TB:** all cases of respiratory (pulmonary or laryngeal) TB which are sputum smear-positive and culture-positive (if culture is available). **Potentially infectious TB:** all cases of respiratory (pulmonary or laryngeal) TB that are sputum smear negative and culture positive (susceptible, MDR-TB or XDR-TB). Additional information should be requested to conduct a risk assessment and determine whether a contact investigation should be considered.	Diagnosis of the index case was confirmed by sputum culture or nucleic acid amplification AND is: (i) sputum smear-positive for acid-fast bacilli AND cavitation is present on a chest radiograph; OR (ii) confirmed to have a multidrug-resistant isolate (regardless of the smear or chest radiograph. results).
M/XDR-TB	Same as 2009 Additionally, the infected contacts should be given advice on what actions to take if symptoms develop, such as informing the treating physician of the possibility of infection with a MDR strain.	No special considerations, the risk of infection of passengers with M/XDR-TB should be assessed using national guidelines.	Consequences of transmission of an M/XDR strain should be included in the risk assessment.	Stricter for MDR-TB (see previous row)
Pre-travel	Same as WHO 2008 Risk of infection of passengers with M/XDR-TB should be assessed using national guidelines.	Patients with confirmed infectious pulmonary TB should avoid air travel. If unavoidable, a specific travel protocol should be agreed upon. Risk of infection of passengers with M/XDR-TB should be assessed using national guidelines.	People with infectious or potentially infectious TB should not travel by commercial air transportation on a flight of any duration.	Not specifically mentioned
Evidence of transmission	Same as 2009 Additionally, if previous contact investigation results cannot be obtained despite considerable efforts, the tracing should be initiated only in exceptional circumstances.	Evidence of transmission to other contacts (refers to cases with evidence of transmission in household or other close contacts).	Documented transmission to close contacts is one of the criteria to consider in the risk assessment to decide whether a contact tracing is initiated if index case is classified as 'potentially infectious'.	Considered only in exceptional cases
Flight duration	Same as 2009	≥8 h (including ground delays)	Total flight duration ≥8 h (including ground delays after boarding, flight time and ground delays after landing)	≥8 hours gate-to-gate (including boarding and deplaning time or delays on the tarmac)
Time passed since flight	Same as 2009 Additionally, relevant national authorities may consider longer time lags in specific cases.	Time to diagnosis less than three months	3 months before notification	Index case was diagnosed within 3 months of the flight AND the flight occurred within 3 months of notification
Contacts to suggest screening to	Same as 2009. Addition: for wide aircrafts, only contacts seated within two seats may be included	Contacts seated in the same row, two rows ahead and two rows behind the index case	Contacts seated in the same row, two rows ahead and two rows behind the index case	Contacts seated in the same row, two rows ahead and two rows behind the index case
Special considerations for susceptible groups	Same as 2009	If tracing initiated, special efforts should be made to trace particularly susceptible contacts, such as children/infants.	Timely medical examination, radiograph & follow-up regardless of the TST	Not specifically mentioned

Table 4. Overview of influenza events obtained from peer-reviewed literature

Reference	Country	Year of event	Flight time including ground delay (hours)	Ground delays?	HEPA filter functional?	Age of index patient	Index patient's symptoms	On-board trans-mission?	On-board trans-mission/ non-transmission: evidence level	Number of passengers traced/ infected	Infected contacts: distance from index case (seat rows)
Michael R. Moser et al. Am J Epidemiol. 110:1-6. 1979.	USA	1977	unknown	yes	no	21	cough, fever, chills	yes	high	38/52 (73.0 %) successfully traced passengers were infected.	unknown
Karl C. Klontz et al. Am J Epidemiol. 129:2. 1989.	USA	1986	3	unknown	unknown	unknown	cough, fever, headache	yes	medium	18/36 (50.0 %) successfully traced passengers were infected.	7 same row 8 one row 3 two rows
Karl C. Klontz et al. Am J Epidemiol. Vol. 129:2. 1989	USA	1986	3	unknown	unknown	unknown	cough, fever, headache	yes	medium	5/43 (11.6 %) successfully traced passengers were infected: 90 contacts in total.	1 same row 1 one row 2 three rows 1 four rows
Marsden AG. Med J Aust. 2003	Australia	1999	4	unknown	unknown	unknown	cough, fever, headache	yes	medium	20/20 (100 %) successfully traced passengers were infected; total number of contacts unknown.	4 same row 2 one row 5 two rows 3 three rows 1 four rows 1 five rows 2 six rows 1 eight rows 1 ten rows
Joseph F. Perz et al. Int J infect Dis. 2001	USA	1999	unknown	unknown	unknown	unknown	cough, fever	no	unknown	Only 3/30 (10.0 %) passengers were successfully traced; of those, none were infected; total number of contacts unknown.	unknown

TABLE 2. Number and Percentage of Successfully Traced Passengers After In-flight Exposure to Influenza, Number of Index, and Secondary Cases, and Percentage of Secondary Cases Seated Within Two Rows of an Index Case, With and Without Restriction to Laboratory-confirmed Secondary Cases Infected with influenza A(H1N1)pdm09, by Study/Flight

Data from All Studies									Restriction to Laboratory-confirmed Secondary Influenza A(H1N1)pdm09 Cases			
First Author, Flight	Passengers Aboard	Passengers Traced	%	Index Cases	Secondary Cases Identified	Attack Rate %	Secondary Cases Within 2 Rows	% Sec. Cases in 2 Rows	Index Cases	Secondary Cases Identified	Secondary Cases Within 2 Rows	% Sec. Cases in 2 Rows
Shankar[23a]	277	43	16	1	5	12	1	20	1	5	1	20
Young[24a]	278	239	86	6	10	4	5	50				
Zhang[26], flight 1	274	82	30	1	9	11	8	89	1	9	8	89
Zhang[26], flight 2	144	140	97	1	0	0	0	na	1	0	0	na
Neatherlin[27]	265	159	60	1	8	5						
Neatherlin[27]	167	133	80	1	7	5	3	43				
Catala[28]	165	74	45	6	4	5	4	100	6	4	4	100
Foxwell[29], flight 1	445	188	42	10	24	13	9	38	4	2	2	100
Foxwell[29], flight 2	293	131	45	3	6	5	4	67	0	1	1	100
Ooi[30]	596	26	4	1	5	19	2	40	1	5	2	40
Kim[31]	338	199	59	1	1	1	0	0	1	1	0	0
Baker[32]	379	121	32	11	2	2	2	100	9	2	2	100
Han[33], flight 1	91	91	100	1	0	0	0	na	1	0	0	na
Han[33], flight 2	87	87	100	1	0	0	0	na	1	0	0	na
Han[33], flight 3	87	87	100	2	1	1	1	100	2	1	1	100
Bin[35]	141	141	100	1	0	0	0	na	1	0	0	na
Marsden[10]	75	75	100	1	20	27	9	45				
Klontz[11], flight 1	44	44	100	8	18	41	18	100				
Klontz[11], flight 2	46	46	100	3	5	11	2	40				
Moser[9]	60	59	98	1	38	64						
Total	4,252	2,165	51	61	163	8	68	42	27	30	21	70

Influenza Transmission on Aircraft

A Systematic Literature Review

Katrin Leitmeyer and Cornelia Adlhoch

La mayoría de los casos secundarios se identificaron a una distancia mayor qu
dos filas del caso índice.

Influenza

La influenza generalmente se transmite por gotitas, tiene un número de reproducción básico entre 1.5 y 2.5.

Hay evidencia de la transmisión a bordo en vuelos <8 horas y de la transmisión a contactos situados hasta 10 filas desde los casos índice.

En cuanto a los síntomas del caso índice, la intensidad de los síntomas generalmente coincide con la curva de diseminación desprendimiento.

Bajo ciertas circunstancias, por ej. La aparición de un nuevo subtipo de influenza de transmisión humana a humana, el rastreo de contactos puede considerarse incluso si el caso índice ha sido asintomático.

Table 5. Overview of SARS events

Reference	Country	Year of event	Flight time including ground delay (hours)	Ground delays?	HEPA filter functional?	Age of index patient	Index patient's symptoms	On-board trans-mission?	On-board trans-mission/ non-transmission: evidence level	Number of passengers traced/ infected	Contacts: distance from index case (seat rows)
Vogt TM et al. (2006)Travel Med, Volume 13, Issue5,, 268-272	USA	2003	unknown	unknown	unknown	unknown	unknown	no	low	312/1766 (17.7%) successfully traced passengers; of those, none infected.	-
Wilder-Smith A et al. (2004) J Travel Med. Mar-Apr; 11(2):130	Singapore	2003	8	unknown	unknown	male	cough, fever	yes	medium	1 passenger infected; number of traced passengers unknown.	-
Desenclos JC, (2003) Emerg Infect Dis. Vol 10, No 2	France	2003	8	unknown	unknown	male	difficulty breathing	yes	high	2/401 (0.5%) total contacts infected; number of successfully traced passengers unknown.	-
Flint J et al. (2003) Can Commun Dis Rep. Jun 15; 29(12):105-110	Canada	2003	8	unknown	unknown	unknown	unknown	no	unknown	0/338 successfully traced passengers infected; total number of traced passengers unknown.	-
Lesens O. Presse Med 2003; 32: 1359-65	France	2003	8	unknown	unknown	male, 54	unknown	yes	low	1 passenger infected; total number of passengers traced/ successfully traced unknown.	1 one row
Sonja J. Olsen et al. N Engl J Med. 349: 2416-22.	Thailand	2003	2	unknown	unknown	male, 54	asymptomatic	no	low	74/315 (23.5%) successfully traced passengers; of those, none infected.	-
Sonja J. Olsen et al. N Engl J Med. 349: 2416-22	Thailand	2003	3	unknown	unknown	male, 72	cough, fever	yes	high	22/120 (18.3%) total contacts infected; number of successfully traced passengers unknown.	1 same row, 3 one row, 5 two rows, 2 three rows, 2 four rows, 3 five rows, 2 seven rows
Sonja J. Olsen et al. N Engl J Med. 349: 2416-22	Thailand	2003	2	unknown	unknown	unknown	cough, fever	no	medium	166/246 (67.5%) successfully traced passengers; of those, none infected.	-
Breugelmans et al (2004) Emerg Inf Dis. 10:8, 1502-03	Germany	2003	2–13 (7 flights)	unknown	unknown	male, Chinese, 48	fever, general malaise	no	low	36/250 (14.4%) successfully traced passengers; of those, none infected.	-

Table 6. Information retrieved from SARS control guidelines relevant to contact tracing (CT)

Guideline	CT recommended if...	Recommended CT mode	Time frame for CT recommended	Other measures recommended
WHO recommended measures for persons undertaking international travel from areas affected by severe acute respiratory syndrome (SARS). Wkly Epidemiol Rec. 2003 Apr 4;78(14):97-9.	N/A	N/A	N/A	• Provide index case with surgical facemask • Provide individual toilet to index case • Contacts should provide investigating health authorities with identification and contact addresses valid for at least another 14 days after the flight. • If crew member is a SARS case, all passengers should be regarded as contacts. • Inform contacts about SARS; radio ahead to airport of destination about suspected SARS case on board.
CDC: Guidance about SARS for Airline Flight Crews, Cargo and Cleaning Personnel, and Personnel Interacting with Arriving Passengers (2004).	N/A	N/A	N/A	See WHO recommendations. – AND – After the arrival of the airplane, the ill passenger should be separated from exposed and asymptomatic passengers, placed in an isolation facility and assessed medically. All other passengers should be assessed for illness and types of exposure to the index case and other potential SARS exposure. They should also be informed about SARS and advised to seek medical attention if they develop any symptoms compatible with SARS within 10 days of the flight.
RKI: Fortgesetzte SARS-Surveillance: Empfehlungen zum Umgang mit Kontaktpersonen bei erneutem Auftreten von Schwerem Akuten Respiratorischen Syndrom (SARS) in der Nach-Ausbruchsphase.	N/A	N/A	N/A	RKI defines Contact Categories 1 and 2 in relation to the risk of exposure/infection. All on-board contacts are considered Category 1 if they were within a two-metre distance from the index case or had contact with index case's body fluids or intimate contact. For contacts in Category 1, home isolation for 10 days after having contact with the index case, and health monitoring for 10 days after having contact with the index case is recommended. On-board contacts fall under Category 2 if they stayed in the same closed environment as the index case, at a distance of more than two metres from the index case. RKI recommends that Category 2 contacts should be asked to provide detailed contact information and receive information about signs and symptoms of SARS. In addition, their body temperature should be monitored daily for 10 days after contact with the index case. Immediate consultation of local public health services or other healthcare providers is recommended.
Public Health Agency of Canada: SARS and air travel: Interim guidelines for prevention and control. (2003)	N/A	N/A	N/A	See WHO recommendations.
NSW infection control guidelines for SARS (2003)	N/A	N/A	N/A	See WHO recommendations.
US Aerospace Medical Association (ASMA) Medical Guidelines Task Force: Emerging infectious disease including SARS; guideline for commercial air travel and medical transport.	N/A	N/A	N/A	See WHO recommendations.
IATA Suspected communicable disease: General guidelines for cabin crew (2006).	N/A	N/A	N/A	See WHO recommendations. – AND – If the facemask is not tolerated by the passenger, crew members should wear facemasks to protect themselves.

SARS

No se han notificado casos de transmisión antes del inicio de los síntomas.

Hay evidencia de la transmisión a bordo en vuelos <8 horas y de la transmisión a contactos sentadosHasta siete filas de asientos de los casos índice.

No está claro si estos hallazgos deben ser considerados criterios suficientes para iniciar el rastreo de contactos para vuelos <8 horas y si el rastreo de contactos puede limitarse a 1–7 Asientos de filas alrededor del caso índice.

Al tomar en cuenta el riesgo para la salud pública del SARS, el rastreo de contactos de todos los pasajeros y la tripulación debe considerarse cuidadosamente en todos los eventos del SARS..

Resumen de los eventos meningocócicos

Reference	Country	Year of event	Flight time including ground delay (hours)	Ground delays?	HEPA filters functional?	Index patient's age	Index patient's symptoms	On-board trans-mission?	On-board transmission/ non-transmission: evidence level	Number of passengers traced/ infected	Infected contacts: seat rows distance from index case
Bar-Oz et al (2003). Letter in: Emerg Inf Dis 9: 757-758	Israel	2000	11	unknown	unknown	20	malaise, numbness of feet, rash	unknown	-	unknown; close contacts of index case provided with PEP immediately	unknown
CDC, MMWR Weekly, June 15, 2001, 50 (23); 485-9.	USA	2001	8	unknown	unknown	62	unknown	no	medium	1/2 contacts successfully traced; not infected. Information on second contact not available	unknown
Grey literature. RKI: Epid. Bull. 15/2001	Germany	2001	3	unknown	unknown	57	No symptoms during flight; two days later: fever, vomiting and progress to Waterhouse-Friderichsen syndrome.	unknown	-	unknown; two passengers seated next to the index case traced successfully, PEP administered.	unknown
O'Connor BA et al. Commun Dis Intell. 2005; 29(3): 312-4	Australia	2003	15	unknown	unknown	68	Index patient asymptomatic. Three days after flight, patient shows fever, diarrhoea , vomiting and petechiae; both index patient and infected contact recover after antibiotic treatment.	yes	high: genotyping suggested epidemiological link; serogroup B	1/9 identified contacts infected	1; twelve rows
Riley LK. Aviat Space Med Vol 77, No.7. July 2006	USA	2005	11	unknown	unknown	unknown	headache, vomiting, photophobia	no	unknown	-	unknown
Telephone interview	Germany	2005	4	unknown	no	38	cough, fever, petechiae	no	unknown	-	unknown
Grey literature RKI. Epidemiol. Bulletin 24/2005	Germany	2005	< 8	unknown	unknown	unknown	cough	unknown	-	CT unsuccessful	unknown
Telephone interview	Greece	2008	2	unknown	unknown	27	fever	no	unknown	0/4 identified contacts infected	unknown
Telephone interview	Germany	2008	2	unknown	unknown	29	influenza-like illness	no	unknown	unknown	unknown

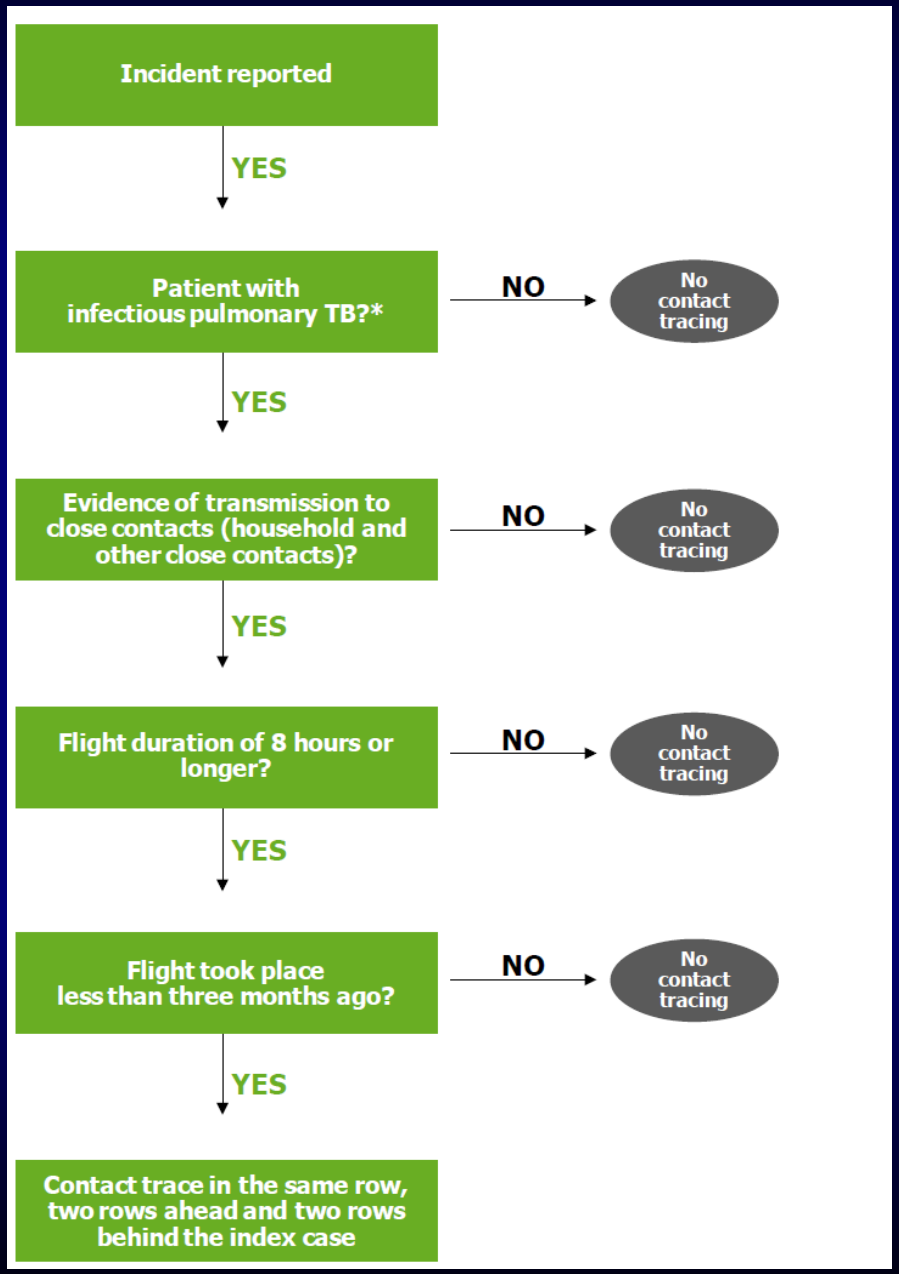
Resumen de los eventos meningocócicos

Reference	Country	Year of event	Flight time (hours)	Ground delays?	HEPA filter functional?	Index patient's age	Index case's symptoms	On-board trans-mission?	On-board trans-mission: evidence level	Number of passengers infected	Distance of contacts (seat rows)
CDC. Interstate importation of measles following transmission in an airport — California, Washington, 1982. MMWR Morb Mortal Wkly Rep. 1983 Apr 29;32(16):210, 215-0, 216.	USA	1981	unknown	unknown	unknown	27	index case symptomatic, (not specified)	yes	medium	1	unknown
Amler RW, Bloch AB, Orenstein WA, Bart KJ, Turner PM Jr, Hinman AR. Imported measles in the United States. (1982) JAMA 248(17).	USA	1982	unknown	unknown	unknown	(child)	yes, prodromal stage symptoms	yes	unknown	2	unknown
Slater PE, Anis E, Bashary A. An outbreak of measles associated with a New York/Tel Aviv flight. Travel Med Int 1995;13:92-5.	Israel	1994	10	1	unknown	4	no	yes	medium	unknown	unknown
Amornkul PN, Takahashi H, Bogard AK, Nakata M, Harpaz R, Effler PV. Low risk of measles transmission after exposure on an international airline flight. J Infect Dis 2004 May 1;189 Suppl 1:S81-S85.	USA	2000	7	unknown	unknown	17	cough, fever, headache, rash, sore throat, conjunctivitis	unknown	-	-	-
CDC. Postexposure prophylaxis, isolation, and quarantine to control an import-associated measles outbreak. Iowa, 2004. MMWR Morb Mortal Wkly Rep 2004 Oct 22;53(41):969-71.	USA	2004	8	unknown	unknown	unknown	unknown	yes	medium	1	unknown
de Barros FR, Segatto TC, Luna E: Measles transmission during commercial air travel in Brazil. (Letter in: Journal of Clinical Virology 36 (2006) 235–236).	Brazil	2005	unknown	unknown	unknown	36	unknown	yes	high	2/118	3–8

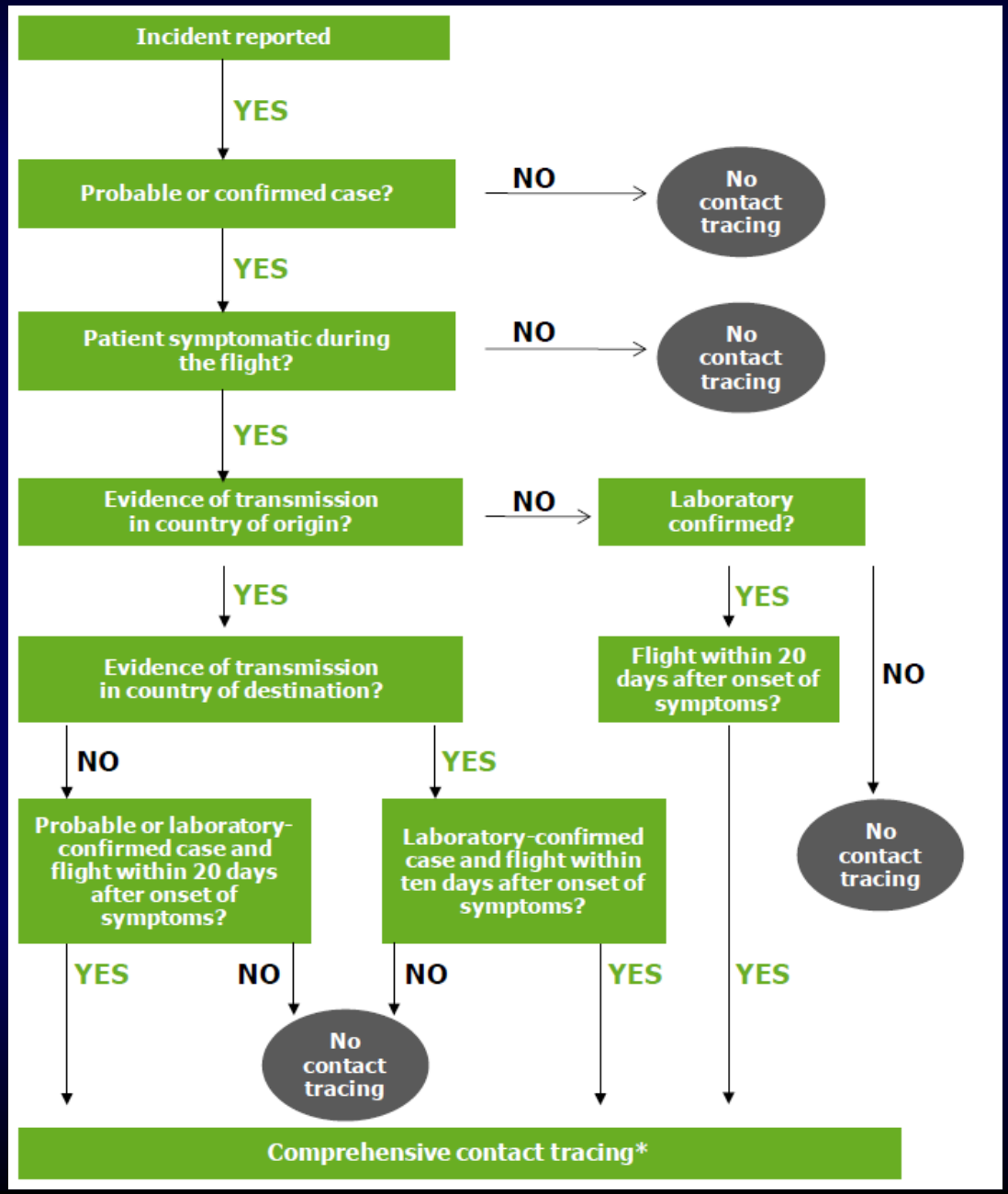
Resumen de los eventos relacionados con fiebre de Lassa

ID/Type of event	Country	Year of event	Flight time including ground delay (hours)	Ground delays?	HEPA filter functional?	Index patient age	Index patient's symptoms/lab status during flight	On-board trans-mission?	On-board transmission/ non-transmission: evidence level	Number of passengers infected	Distance of contacts (seat rows)
Cooper et al. BMJ Vol (1982); 285: 1003-05	UK	1981	> 8	unknown	unknown	18	Asymptomatic during flight, fever five days before the flight: fever, abdominal pain, vomiting and headache eight days after flight.	unknown	High: 159/173 (91.9) ground contacts successfully traced: no transmission.	-	-
Haas W, Breuer Th. Imported Lassa Fever in Germany: Surveillance and Management of Contact Persons. CID 2003:36 (15 May)	Germany	2000	> 8	unknown	unknown	unknown	fever, cough	no	High: 51/56 (91 %) of categorised contacts underwent serological testing, none of them were infected.	-	-
Telephone interview	Germany	2000	3	unknown	yes	23	cough, fever, haemorrhage, headache	no	High: 34/34 (100.0 %) contacts successfully traced.	-	-
Crowcroft et al Journal of Infection (2004); 48, 221-228	UK	2000	> 8, air ambulance	unknown	unknown	unknown	fever	no	Medium: 78/125 (62 %) contacts, including five air ambulance staff, successfully traced.	-	-
CDC: Imported Lassa fever – New Jersey, 2004. MMWR Morb Mortal Wkly Rep 2004; 53: 894-7.	USA	2004	> 8	unknown	unknown	unknown	fever, chills, sore throat, diarrhoea, back pain	no	High: 5/5 passengers classified as high risk contacts (family members) and 16/19 passengers classified as low risk were not ill within one incubation period.	-	0–3 rows
Telephone interview	France	2006	10	yes	unknown	68	fever, headache haemorrhage, rash	no	Medium: 10/18 (55.6 %) contacts successfully traced.	-	-
Telephone interview	Germany	2006	10	yes	unknown	68	fever, headache haemorrhage, rash	no	Medium: 36/92 (39.1 %) contacts successfully traced.	-	-

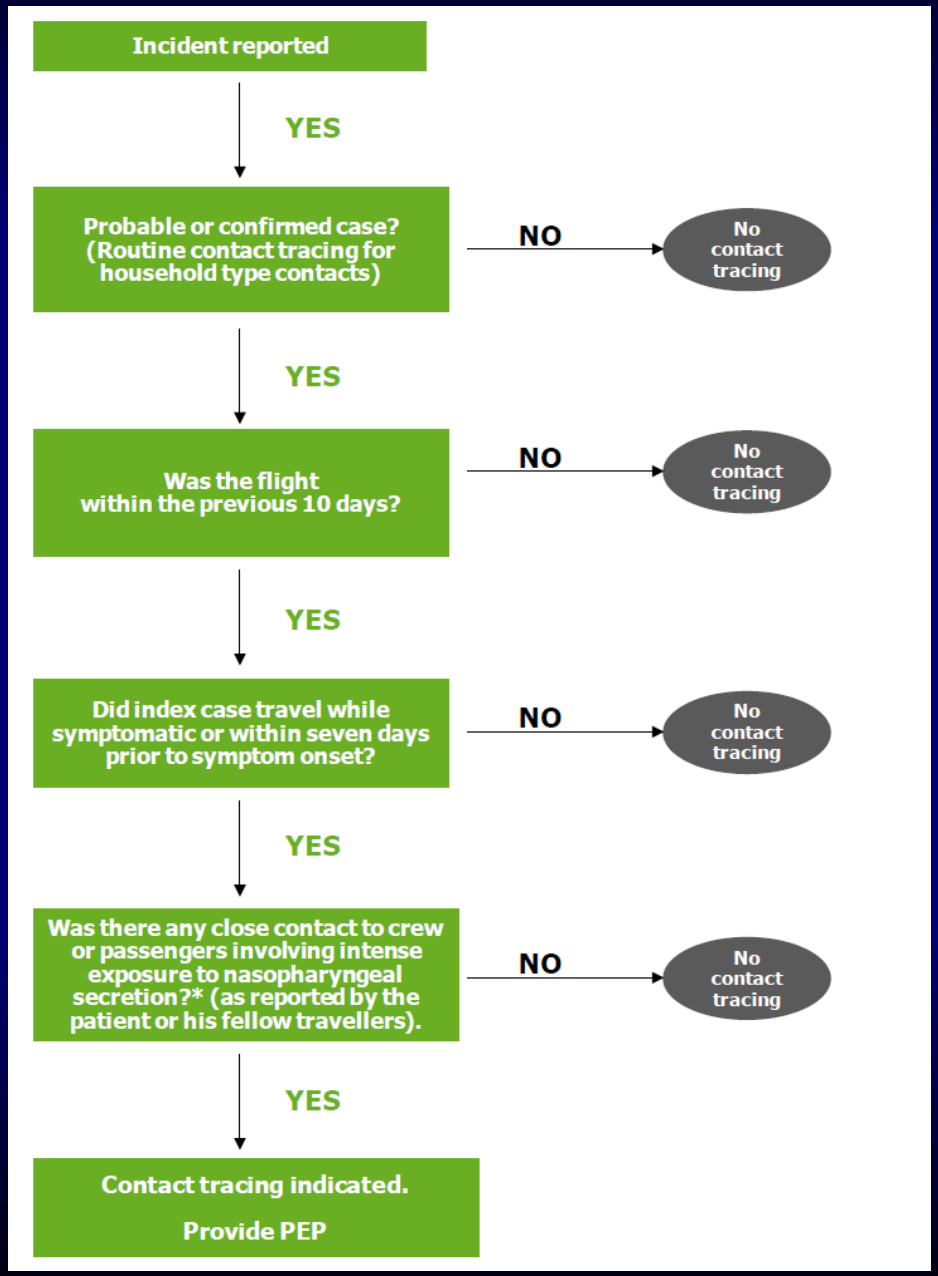
Algoritmo de evaluación de riesgos de la tuberculosis



Algoritmo de evaluación de riesgos de SARS

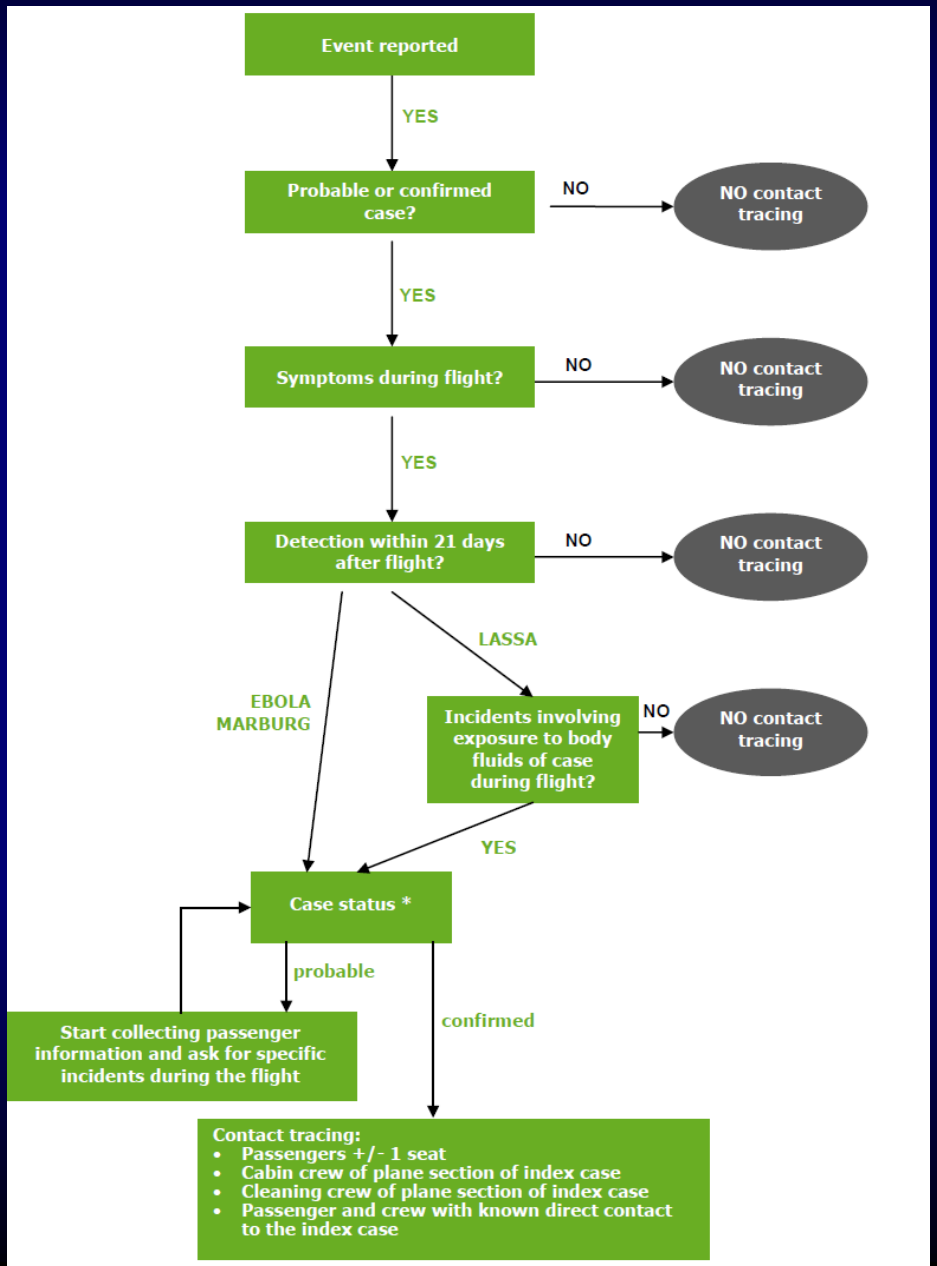


Algoritmo de evaluación de riesgos de SARS

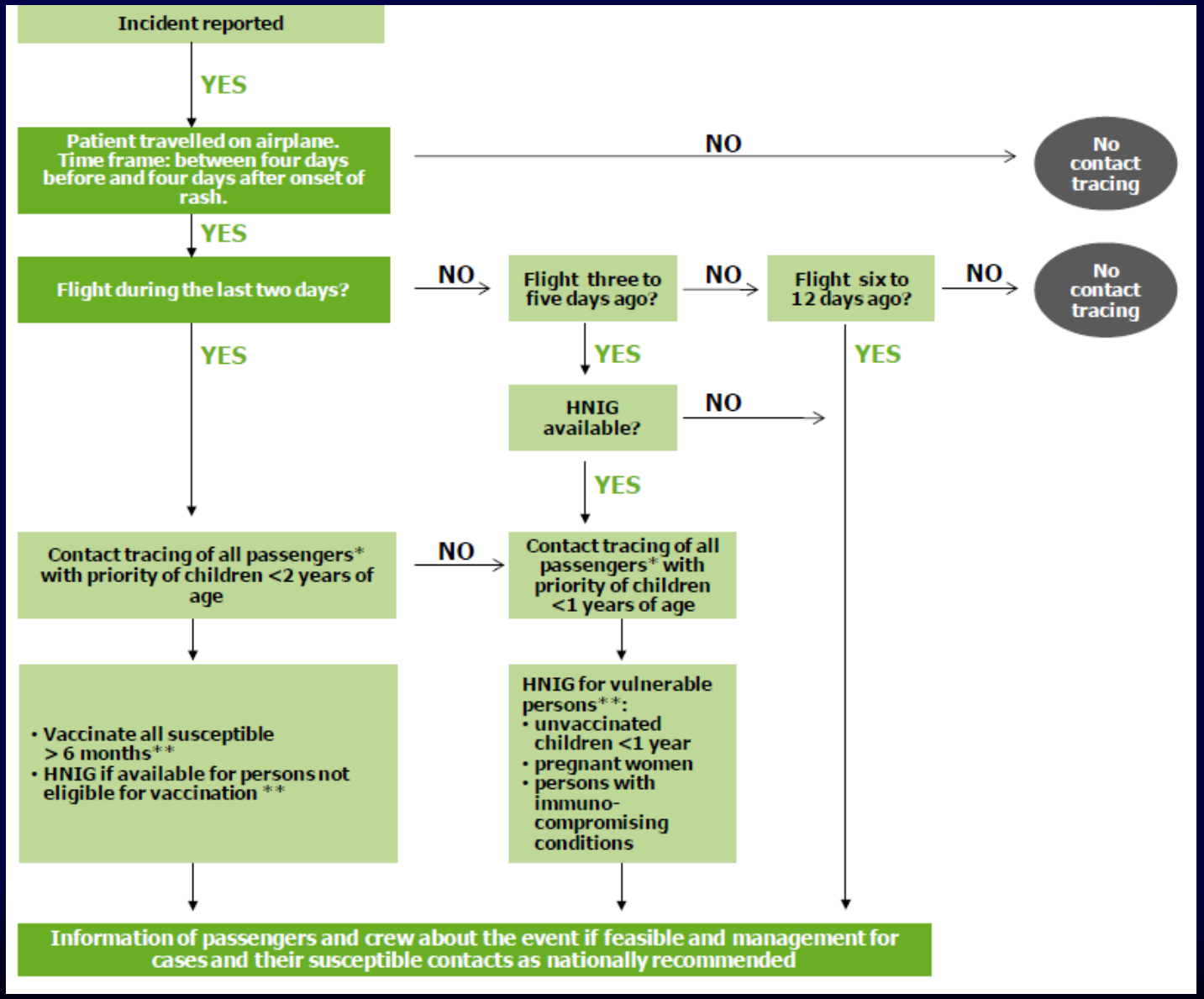


Área relevante para las la búsqueda de trazadores , fiebres hemorrágicas víricas (Lassa, Marburg, Ébola)

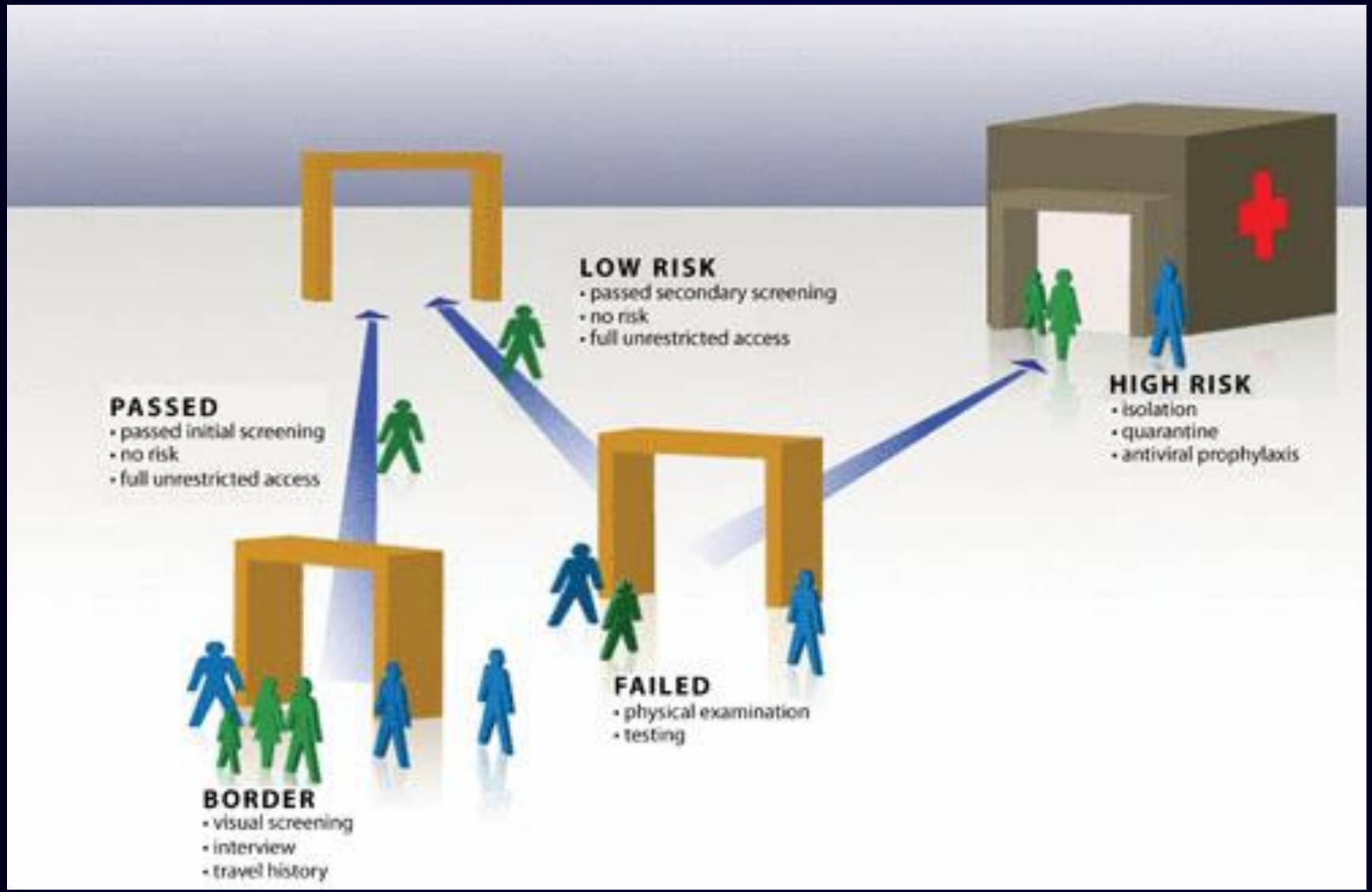
Algoritmo de evaluación de riesgos de fiebres hemorrágicas víricas (Lassa, Marburg, Ébola)



Algoritmo de evaluación de riesgos de Sarampion



Tamización basado en el riesgo de pasajeros de aerolíneas durante una pandemia de nuevos agentes



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RETOS Y CONCLUSIONES

Evaluar la evidencia que respalda las medidas de control para la transmisión de enfermedades infecciosas a través de viajes aéreos.

Se de be investigar en medidas de control costo/efectivas para el control de vectores.

Optimizar la tamización de pasajeros.

Las estrategias actuales de educación y comunicación, requieren mejoras.

Las medidas no se pueden implementar en ausencia de una legislación internacional y de gobernanza exigibles y armonizadas.

"Los microbios patógenos pueden ser enemigos peligrosos y resistentes y aunque es imposible predecir su emergencia individual en tiempo y lugar, si debemos estar seguros que nuevas enfermedades microbianas apareceran"

Institute of medicine of the National Academy of Sciences: Microbial threats to Health,1992